TC-HIR-2025

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Subject / Title: Listing of Scan Tables, descriptions, dates executed and comments/results.

Description/Summary/Contents:

Keywords: Scan ID #, Scan Table #, Description

Purpose of this Document:

Scan Tables

Scan ID#	Scan Table #	Description	Date Completed	Comments / Results
61001	2	Stare for 30secs, scans 10 cycles between -1 and +1 deg el shaft angle, all at -23.5 deg az shaft angle.	Mar 13 / DOY 72	Oscillations start at ~ -0.1 deg. Elev. Shaft angle. Oscillations are bigger for –ve (space) going scans above -0.1 deg, but below that are cleaner, and better for science. The +ve (earth) going scans are quieter at space, but have ripples below -0.1.
61101	3	Same as Table 2, but for a constant altitude range to explore how different scan angle ranges excite oscillation.	Mar 13 / DOY 72	
61201	4	Single down scan, waits 30 secs, single up scan, waits 30 secs to see whether one direction excites the oscillation more than the other. El range is 0 to -1 deg. Az angle is -23.5 deg.	Mar 13 / DOY 72	
61301	5	Goes to constant tangent height at earth end and constant elevation at space end.	Mar 16 / DOY 75	Data being analyzed.
61402	6	Similar to Table 3, with alternate scans at half speed on return.	Mar 21 / DOY 80	Data being analyzed.
61501	7	Move in az from -23.5 deg shaft angle to -16 deg then back, and waits 40 secs, at one elev angle. Then repeats at another elev angle, for a total of 8 elev angles. To determine whether degree of excitation caused by az sweep depends on elev angle.	Mar 16 / DOY 75 (door at 34 deg) Mar 21 / DOY 80 (door at 34 deg and 60 deg)	Oscillations sometimes still visible at start of scan after 40 sec pause. Results repeatable for all 3 runs.

Scan Tables

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61601	8	Elev scan from ~0.45 deg to -1.11 deg, then goes back to 0.45 deg in time x. Where x = 0.5 sec, 1.0 sec, etc. up to 8.0 sec. To determine amount of excitation vs. flyback speeds.	Mar 21 / DOY 80	Doing flyback in < ~3.5 sec then waiting induces greater oscillations than slower flyback w/ shorter wait of same overall duration. A combined time of ~14 sec or longer may be required for oscillations to die down.
61701	9	Similar to Table 7 but with a 1.5 sec slew instead of 2 sec. Test whether the dependence on elev is a result of coupling with the az scan rate.	Apr 1 / DOY 91	Data being analyzed.
61801	10	21 elev scans of increasing rate from 0.85 deg elev to a –ve angle that varies but always gives 9 sec of data after it passes -0.05 deg. Checks the amplitude and freq of oscillations as a fcn of elev scan rate.	Mar 31 / DOY 90	Passing thru -0.05 to -0.1 deg elev shaft angle excites oscillation. The exact point varies around orbit. The period is sharply peaked at 1.95 Hz. Rates faster than ~ -0.116 deg/Chopper Rev induce larger amplitude oscillations. Oscillations still visible after 700 CR (8.4 sec).
	11	1.2 deg el scan from earth to space then turns around at -0.6 deg and does another scan back of 1.2 deg, then pauses for 20 secs. Shifts by ~0.16 deg and repeats for 5 pairs of scans. Angles are corrected for oblateness, az shaft angle is -23.5 deg.	Apr 4 / DOY 94	Elevation angles more positive than -0.1 deg do not induce oscillations.
61A02	12	Scan at various elevation rates to determine effects on exciting oscillation.	Apr 19 / DOY 109	Medium rates (around 177-200 m/CR) over the range chosen cause smaller amplitude oscillations than faster or slower rates.

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50301	13	Nominal science scan table. Sequence: -23.5 up, -23.5 down x 19, 0.1695 deg/s az=-23.5 up, az=-14 dn @ 0.3000 deg/s Elev amplitude -1.2434->0.6897 Tracks Oblateness No az scans	Ran from Apr 28, 2005 to Apr 23, 2006.	
61B02	14	First of 2 July 2005 PU scan tables. Sequence: -23.5 dn, 0.1554 deg/s -23.5 up, 0.1554 deg/s -22.4 dn, 0.1554 deg/s -22.4 up, 0.1554 deg/s -14 dn, 0.3000 deg/s Elev amplitude -1.5->1.2 horizontal slews -24->-10.	Switched to ST 14 on July 12 @11:56	PU – July 13, S/C pitched from 14:25 to 22:33 to -5.25 deg.
60304	15	Second of 2 July 2005 PU scan tables. Sequence: -23.5 dn, 0.1667 deg/s -23.5 up, 0.1667 deg/s -22.4 dn, 0.5000 deg/s -22.4 up, 0.5000 deg/s -18 dn, 0.5000 deg/s Elev amplitude -1.5->1.2 horizontal slews -24->-10.	Switched to ST 15 on July 13 @ 18:28, then back to ST 13 on July 14 @ 22:23.	PU – July 13, S/C pitched from 14:25 to 22:33 to -5.25 deg.

Scan Tables

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61C02	16	First of 2 Nov 2005 PU scan tables. Sequence: -23.5 up (partial) -23.5 dn, 0.1554 deg/s -23.5 up, 0.1554 deg/s -22.4 dn, 0.1554 deg/s -22.4 up, 0.1554 deg/s -14 dn, 0.3000 deg/s Elev amplitude -1.5->1.2	Switched to ST 16 on Nov 1 @ 12:35	Scan table is like ST14 but no azimuth scans. PU – Nov 2, S/C pitched to -2.62 deg @ 12:35, back to nominal @ 14:23. Then pitched to -5.25 deg @ 15:50 and back @ 22:00.
61D02	17	Second of 2 Nov 2005 PU scan tables. Sequence: -23.5 dn, 0.1667 deg/s -23.5 up,0.1667 deg/s -22.4 dn, 0.5000 deg/s -22.4 up, 0.5000 deg/s -14 dn, 0.5000 deg/s Elev amplitude -1.5->1.2 horizontal slews -24->-10.	Nov 2 – ST 17 @ 17:40 ST 13 @ 19:20 ST 17 @ 21:55 Nov 3 - ST 13 @ 00:00 ST 17 @ 17:30 ST 13 @ 19:30	

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60303	20	Sequence: -24.3 dn, 0.5 deg/s -24 up, 0.5 deg/s -23.5 dn, 0.1667 deg/s -22.4 up, 0.5 deg/s -18 down, 0.5 deg/s Elev amplitude -1.5 – 1.5 horizontal slews -24 ->-10	Used for Feb 9 2005 PU.	S/C pitched to -5.25 deg from 17:44:58 to 21:45:32
50402	21	Az = -23.5, el = -1.242 to 0.942 at rate of +/- 0.1694 deg/sec.	Tested on Apr 8, 2006, and used for May 2006 PU.	Used for de-oscillation code development. Oscillations slightly larger than ST 16.
50501	22	Az = -23.5, el = -1.2 to 0.9 at rate of +/-0.1554 deg/sec (rate same as ST 16). 1 sec turn-around (parabolic).	Tested on Apr 21, 2006. Ran from Apr 24, 2006 00:00:00 thru May 3.	Smaller down scan oscillations than ST 21, smaller up scan oscillations than ST 13 and AT 21.
50601	23	Az = -23.5, el = -1.2 to 1.35 at rate of +/- 0.1554 deg/sec. 1 sec turn-around.	Running from May 4, 2006 00:00:00.	Current science scan table.
61E02	24	Az = -23.5 up, -14 down El = -1.5 to +1.5	Run for 1 Mar 2007 PU	Corresponds to T. Eden's proposed #1 scan pattern.

Scan Tables

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61F01	25	Az = -23.5 dn, 18 up (CCW)	Run for 1 Mar 2007 PU	Corresponds to T. Eden's proposed #2 scan pattern.
62001	26	Az = -23.5 Up, -16 dn	Run for 1 Mar 2007 PU	Corresponds to T. Eden's proposed #3 scan pattern.
62102	27	Az sweeps from -13 to -24 deg, starting at el = -1.25, increasing at 0.25 deg until el = +1.	Run for 1 Mar 2007 PU	Corresponds to T. Eden's proposed #4 scan pattern.
62202	28	Stare at Az = -23.5, El = +0.8	Run for 1 Mar 2007 PU	Stare during pitch transitions.
60B02	29	Similar to ST 27 but with azimuth velocity slowed by a factor of 6.	Run for 13 July 2007 PU	
50102	30	Sequence: -23.5 dn, 0.2200 deg/s -23.5 up, 0.2200 deg/s -22.4 dn, 0.2200 deg/s -18 up, 0.6600 deg/s Elev amplitude -1.0->1.1 No az scans	Ran from Jan 21, 2005 thru Apr 28, 2005.	Science scan